

1 ADAPTIVELY CONFIGURABLE CLASS-A/CLASS-B TRANSMIT DAC
FOR TRANSCEIVER EMISSION AND POWER CONSUMPTION CONTROL

ABSTRACT

5 A power efficient and reduced electromagnetic interference
(EMI) emissions transmitter for unshielded twisted pair (UTP)
data communication applications. Transmit data is processed by
a digital filter. The digital filter output data is converted
to a current-mode analog waveform by a digital-to-analog
10 converter (DAC). The digital filter is integrated with the DAC
binary decoder in a memory device such as a ROM with time
multiplexed output. DAC line driver cells are adaptively
configurable to operate in either a class-A or a class-B mode
depending on the desired operational modality. A discrete-time
15 analog filter is integrated with the DAC line driver to provide
additional EMI emissions suppression. An adaptive electronic
transmission signal cancellation circuit separates transmit data
from receive data in a bidirectional communication system
operating in full duplex mode. For a multi-transmitter system,
20 timing circuitry staggers the time base of each transmitter to
reduce the aggregate EMI emissions of the multi-transmitter
system.

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